Engineering Evaluation Report # SH5500-DG-02072025

Prepared by:
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Certificate of Authorization: #29296

Manufacturer:
PGT Industries, LLC
3400 Precision Drive
North Venice, FL 34275

Product Description:
SH5500 Series Impact-Resistant Vinyl Single Hung Window with Diamond Glass, (LMI), FL-29698

Compliance:
The above-mentioned product has been evaluated for compliance with the requirements of the Florida Department of Business and Professional Regulation for Statewide Acceptance per Rule 61 G20-3.005 method 1(d). The product listed herein complies with requirements of the current Florida Building Code.

This product has been evaluated and is in compliance with the current Florida Building Code, including the “High Velocity Hurricane Zone” (HVHZ).

Supporting Technical Documentation:
1. Approval Document: Drawing number SH5500-DG-LM, signed and sealed by A. Lynn Miller, P.E.
2. Test Report No.: FTL-7964, FTL-7966, signed and sealed by Idalmis Ortega, P.E.
Fenestration Testing Laboratories, Medley, FL
Test Report No.: QAI NOK-0112, NOK-0113, NOK-0114, NOK-0115, signed and sealed by Idalmis Ortega, P.E.
QAI Laboratories, Nokomis, FL

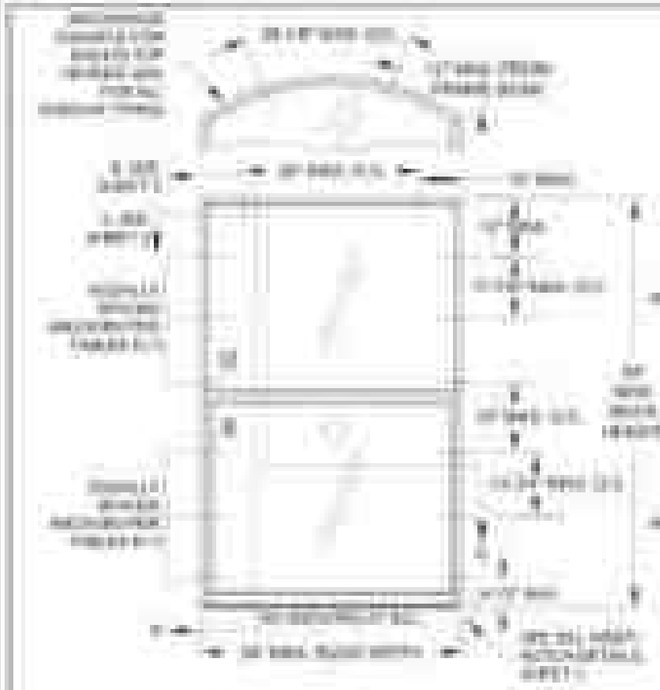
TAS 201-94 Large Missile Impact Test
TAS 202-94 Uniform Static Air Pressure Test
TAS 203-94 Cyclic Pressure Loading Test

3. Calculations, signed and sealed by A. Lynn Miller, P.E.

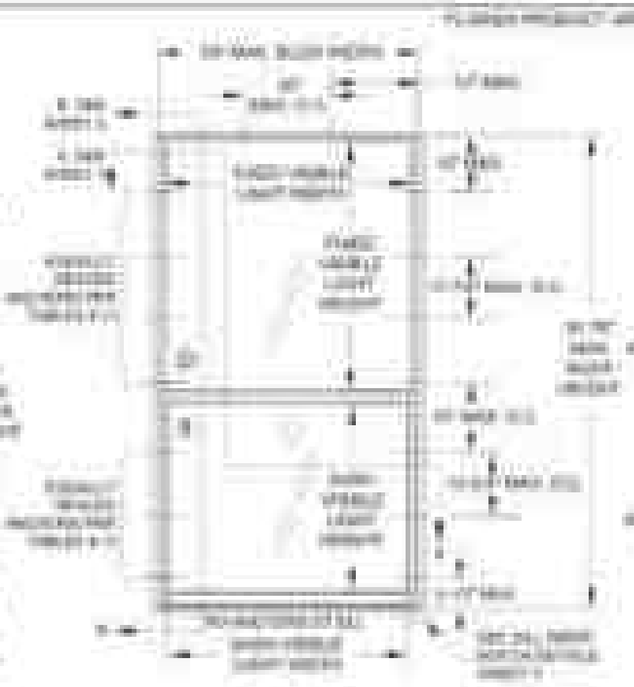
4. Miami-Dade RER Product Control Section NOA’s; PVB and/or SG Interlayer by Kuraray America, Inc.

Limitations and Conditions of use:
• Units must be glazed per ASTM E1300-09, refer to approval document for glazing details.
• This product is rated to be used in the HVHZ.
• This product is impact resistant and does not require impact protection in wind borne debris regions.
• Frame and sash material to be extruded Vinyl.
• Units must be installed in accordance with approval document.

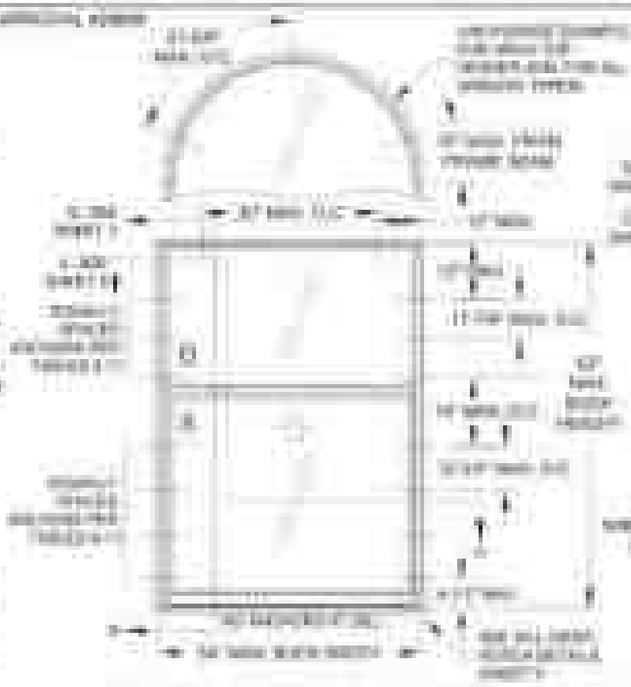




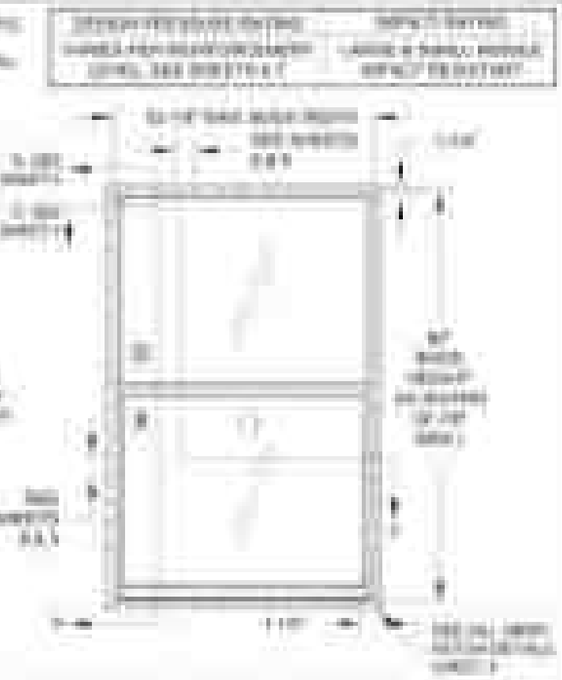
ELEVATION FOR TYP. EQUAL LEG FRAME
SHOWN WITH EQUAL LITE CONFIGURATION



ELEVATION FOR TYP. FLANGE FRAME
SHOWN WITH GRILLES-OVER-IN CONFIGURATION



ELEVATION FOR TYP. FLANGE FRAME
SHOWN WITH STANDARD COTTAGE CONFIGURATION



ELEVATION FOR TYP. FIN OR J-CHANNEL FRAME
SHOWN WITH EQUAL LITE CONFIGURATION
ANCHORED THROUGH THE NAIL FIN

GENERAL NOTES: SERIES SHOWN IMPACT RESISTANT SINGLE HUNG WINDOW WITH (SHADOW) GLASS

USER INSTRUCTIONS:

GENERAL NOTES	1
GLASS PANEL	1
FRAME, GLASS & SASH TOP DETAILS	2
INSTALLATION, FLANGE & EQUAL LEG JAMB	3
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VINYL SINGLE HUNG WINDOW (LM)	1001108
GENERAL NOTES & ELEVATION	CUSTOM-XEMPP
SHEET	1 OF 14
SHEET-DO-LM	

TABLE 1 (ALLOWABLE GLASS TYPES)

Glass Type	Description (Listed from Exterior to Interior)	Glass Type Value #	Exterior Glazed #
1	(1) Lamination (1) - 0.09" x Exterior Type - 0.24" Air Space - 0.09" x Interior - 0.09" x Tempered - 0.060 PVB Interlayer = 0.72in (18.3)	8	0
2	(1) Lamination (1) - 0.09" - Exterior Type - 0.24" Air Space - 0.09" x Interior - 0.060 PVB Interlayer = 0.72in (18.3)	9	0
3	(1) Lamination (2) - 0.09" (2) Exterior Type - 0.24" Air Space - 0.09" (2) Interior - 0.060 PVB Interlayer = 0.72in (18.3)	10	0
4	(1) Lamination (2) - 0.09" (2) Exterior Type - 0.24" Air Space - 0.09" (2) Interior - 0.060 PVB Interlayer = 0.72in (18.3)	11	0
5	(1) Lamination (2) - 0.09" & Exterior Type - 0.24" Air Space - 0.09" & Interior - 0.060 PVB Interlayer = 0.72in (18.3)	5 & 6	0, 1
6	(1) Lamination (1) - (1) (2) Exterior Type - 0.24" Air Space - (1) 0.09" & Interior - 0.060 PVB Interlayer = 0.72in (18.3)	5 & 6	0, 1
7	(1) Lamination (1) - 0.09" - Exterior Type - 0.24" Air Space - 0.09" - Interior - 0.060 PVB Interlayer = 0.72in (18.3)	7	0

Frame Types (see Pg 8)	Glass Options (see Table 1)	Frame Cladding (see Pg 8)	Frame Shapes (see Pg 9)	Installation Options that may be used	
Picture (P)	1 - 7	Exterior to Clad Polymer & Cladding	Straight/Rect, Arch, Fig 8, Radius Top	Through the frame of the window	- Adv 1.0 Fixed Flange Nailing - sheet 3, option 1 - Adv 1.1 Invisible Fin - sheet 3, option 2 - Adv Angle 1.0 Extrusion Connection - sheet 3, option 3 - Adv Block - sheet 3, option 4
Awning (AW)	1 - 7	Exterior to Clad Polymer & Cladding	Straight/Rect, Arch, Fig 8, Radius Top	Through the frame of the window	- Adv 1.0 Fixed Flange Nailing - sheet 3, option 1 - Adv 1.1 Invisible Fin - sheet 3, option 2 - Through 1.0 Extrusion Connection - sheet 3, option 3 - Adv Block - sheet 3, option 4
Casement (CA)	1 - 6	Exterior to Clad Polymer & Cladding	Straight/Rect, Arch, Fig 8, Radius Top	Through the flange fin Through the frame of the window	- Adv 1.0 Fixed Flange Nailing - sheet 3, option 1 - Adv Block - sheet 3, option 4 - Adv 1.0 Fixed Flange Nailing - sheet 3, option 1 - Adv Block - sheet 3, option 4
Hinged Fin (HF)	1 - 6	Exterior to Clad Polymer & Cladding	Straight/Rect, Arch, Fig 8, Radius Top	Through the mounting fin Through the frame of the window	- Adv 1.0 Fixed Flange Nailing - sheet 3, option 1 - Adv Block - sheet 3, option 4 - Adv 1.0 Fixed Flange Nailing - sheet 3, option 1 - Adv Block - sheet 3, option 4

TABLE 2 (ALLOWABLE SUSTAINABLE INSULATION FOR FRAME)

Material	Location	Substrate	Min. Edge Distance	Min. Embedment*
A	#10 SMS (Mod. 11x4 A.S. w 0.15 & C.)	Aluminum Wall (6063-T5 or T6)	0.25"	0.25"
		Steel Wall (33 ksi Min. Yield)	0.25"	0.25"
		Wood Wall (ASTM D1761 or SPF)	0.25"	0.25" (1.5" C.)
		Aluminum Wall (6063-T5)	0.25"	0.25"
	#10 Wood Attachment	Wood Wall (G = 0.42)	0.75in	1.25in
		Wood Wall (G = 0.50)	1"	1.25in
		Aluminum Wall (6063-T5 or T6)	0.25"	0.25"
B	#10 SMS (Mod. 11x4 A.S. w 0.15 & C.)	Aluminum Wall (6063-T5)	0.25"	0.25"
		Steel Wall (33 ksi Min. Yield)	0.25"	0.25"
		Wood Wall (G = 0.42)	0.25"	0.25"
		Wood Wall (G = 0.50)	0.25"	0.25"
C	1/4" Lag Attachment	Aluminum Wall (6063-T5 or T6)	0.25"	0.25"
	1/4" Lag Attachment	Steel Wall (33 ksi Min. Yield)	0.25"	0.25"
D	1/4" Lag Attachment	Aluminum Wall (6063-T5 or T6)	0.25"	0.25"
	1/4" Lag Attachment	Steel Wall (33 ksi Min. Yield)	0.25"	0.25"
	1/4" Wood Lag Attachment	Wood Wall (G = 0.42)	0.25"	0.25"

TABLE 3 (ALLOWABLE SUSTAINABLE FASTENERS FOR SUBSTRATE)

Material	Location	Substrate	Min. Edge Distance	Min. Embedment*
A	#10 SMS (Mod. 11x4 A.S. w 0.15 & C.)	Aluminum Wall (6063-T5 or T6)	0.25"	0.25"
		Steel Wall (33 ksi Min. Yield)	0.25"	0.25"
		Wood Wall (G = 0.42)	0.25"	0.25"
		Aluminum Wall (6063-T5)	0.25"	0.25"
		Steel Wall (33 ksi Min. Yield)	0.25"	0.25" (1.5" C.)
		Wood Wall (G = 0.50)	0.25"	0.25"
	#10 Wood Attachment (Mod. 11x4 A.S. w 0.15 & C.)	Aluminum Wall (6063-T5 or T6)	0.25"	0.25"
		Aluminum Wall (6063-T5)	0.25"	0.25"
		Steel Wall (33 ksi Min. Yield)	0.25"	0.25"
		Wood Wall (G = 0.42)	0.25"	0.25"

FIGURE 1 (FRAME CLADDING)

FIGURE 2 (FRAME TYPES)

FIGURE 3 (FRAME SHAPES)

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VINYL SINGLE HUNG WINDOW (LM) | 10/01/20

DUAL SEAL/ANCHOR FRAME OPTIONS | CUSTOM ASSEMBLY

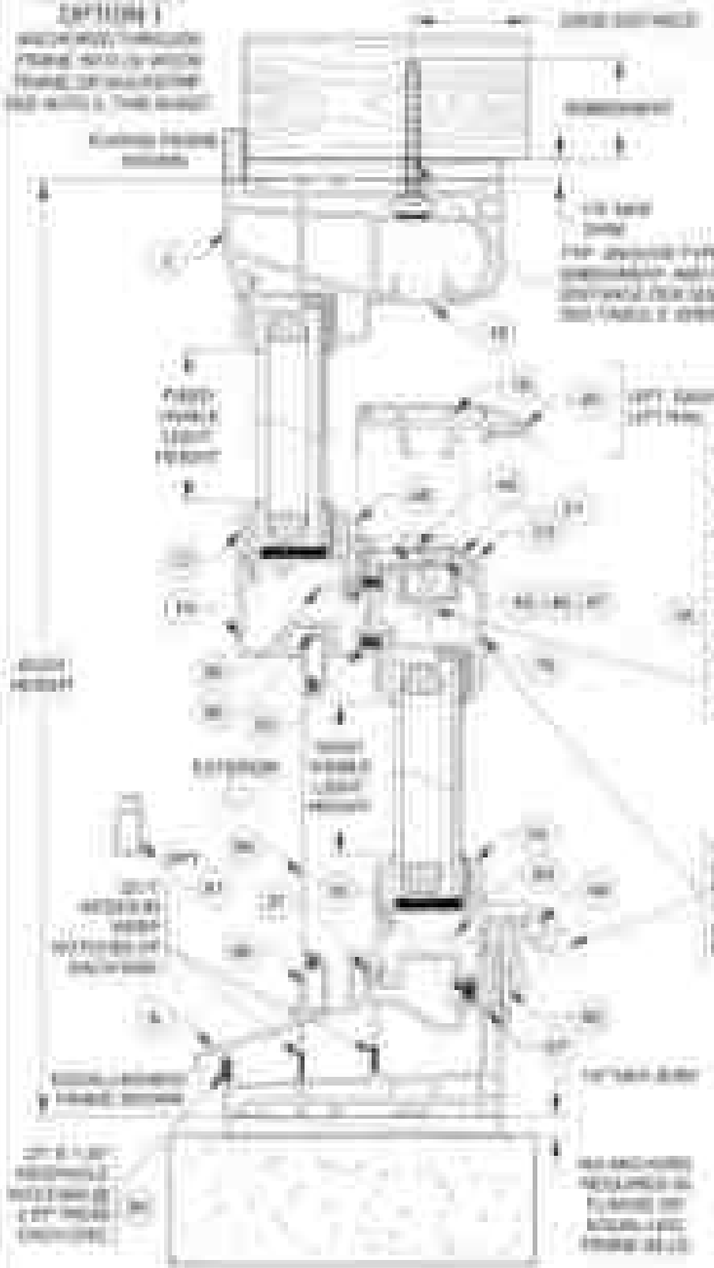
SHEET 3 OF 15 | SHEET NO. LM

INSTALLATION DETAILS FOR FLANGE & EQUAL-LEG/BOX FRAMES

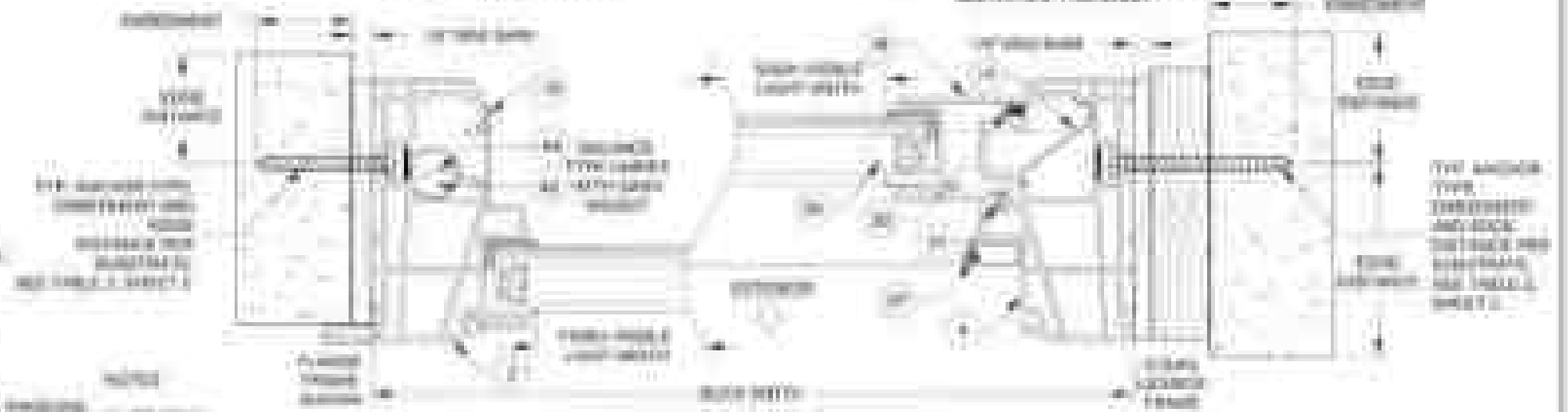
INSTALLATION OPTION 1

INSTALLATION OPTION 2

INSTALLATION OPTION 3



VERTICAL SECTION B-B



HORIZONTAL SECTION A-A



INSTALLATION OPTION 4

INSTALLATION OPTION 5

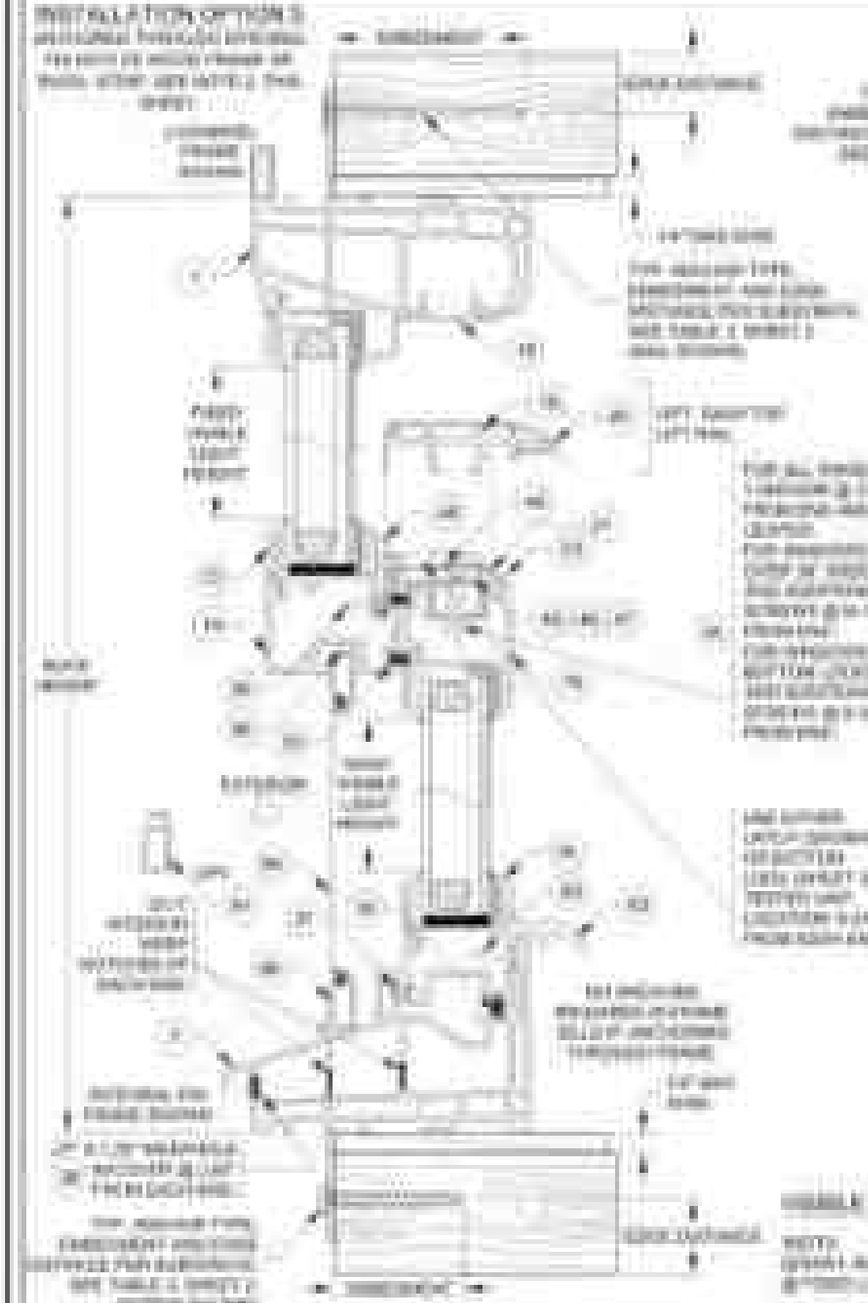
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VINYL DBHUNG HURD WINDOW SIM

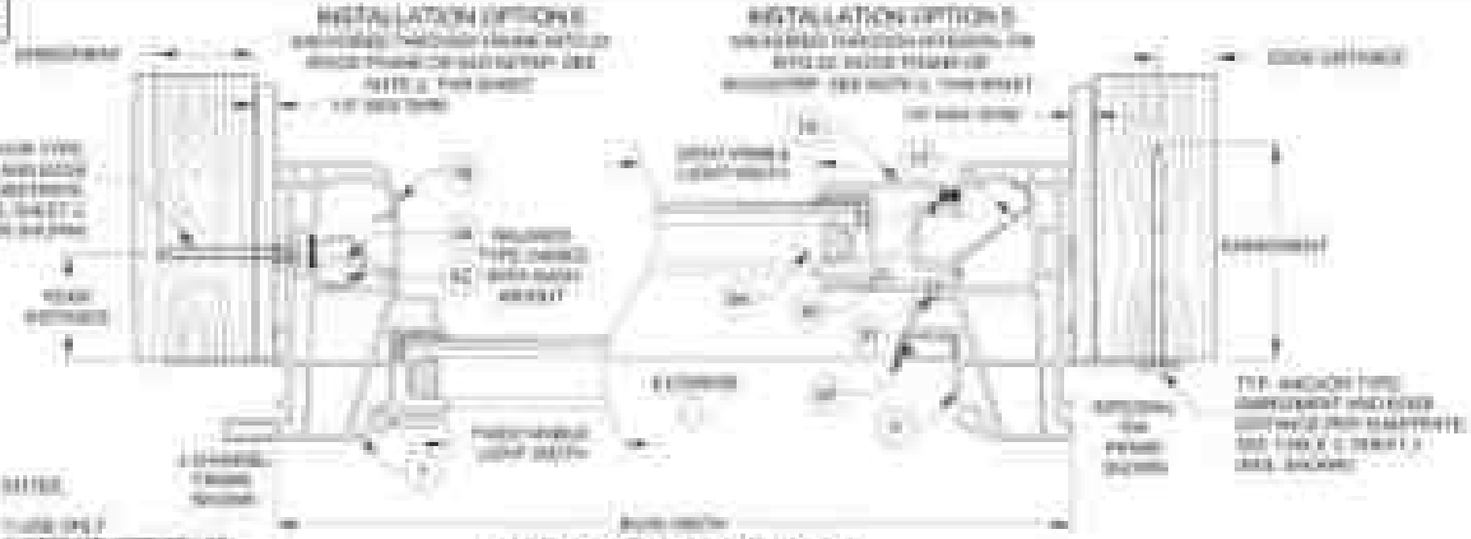
FLANGE & EQUAL-LEG FRAMES

3 OF 16

INSTALLATION DETAILS FOR INTEGRAL FIN & J-CHANNEL FRAMES



VERTICAL SECTION D-D



HORIZONTAL SECTION C-C



PGT	VINYL SINGLE HUNG WINDOW (LC)	CUSTOM
	J-CHANNEL AND INT. FIN FRAMES	COLTON KEMPF
SHEET	6 OF 19	SHEET DD-LW



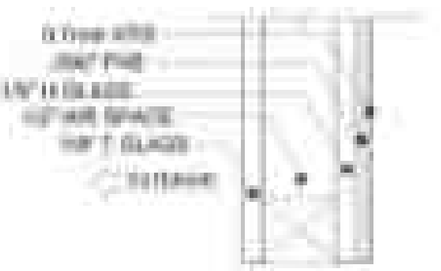
GLASS TYPE 1



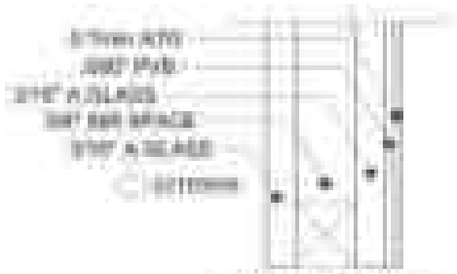
GLASS TYPE 2



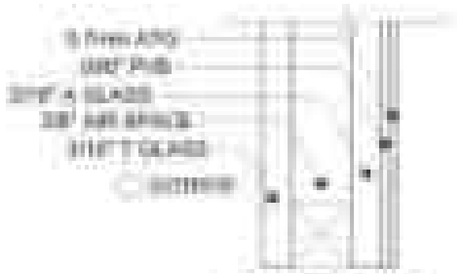
GLASS TYPE 3



GLASS TYPE 4



GLASS TYPE 5



GLASS TYPE 6



GLASS TYPE 7



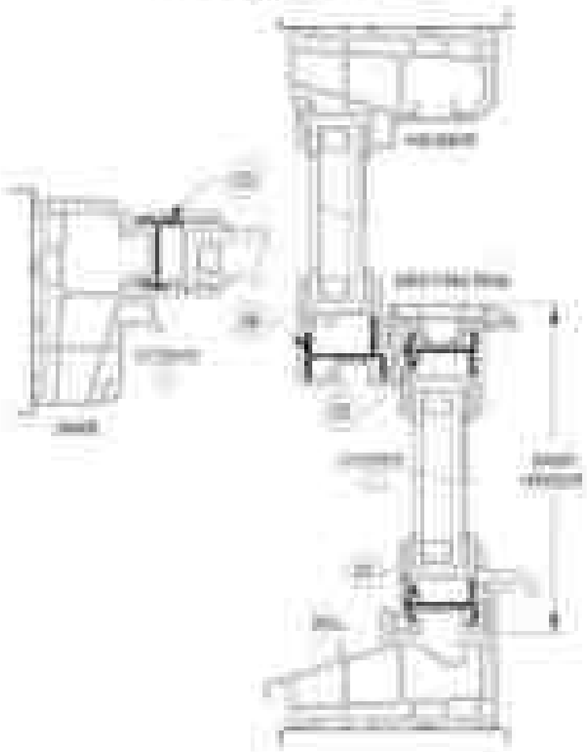
TYP. GLAZING DETAIL



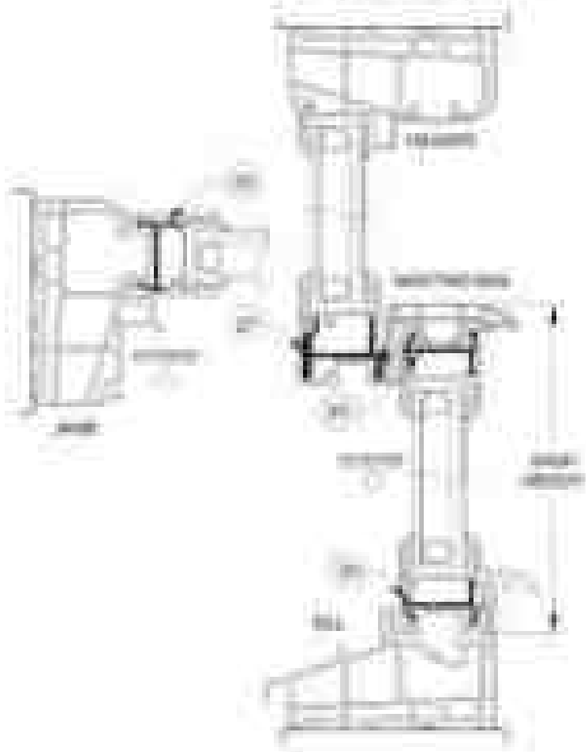








SECTION DETAIL FOR WINDOWS WITH
LEVEL R2 REINFORCEMENT & GLASS TYPES 1 & 2



SECTION DETAIL FOR WINDOWS WITH
LEVEL R2 REINFORCEMENT & GLASS TYPES 3, 4, 5, & 6

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VINYL SINGLE HUNG WINDOW (LM)

DESIGN PRESSURE TABLE



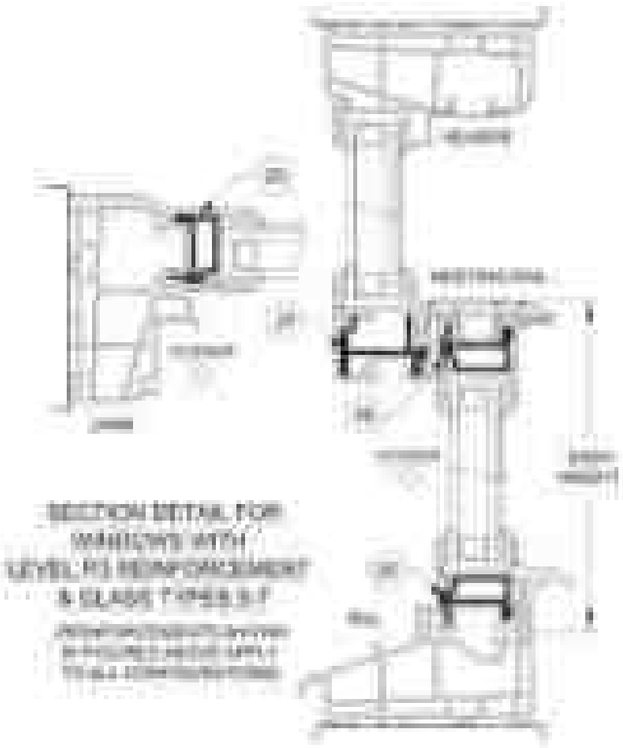
TABLE 2

Glass Type Code	Design Pressure (lb/ft²)

GLASS TYPES & DESIGN PRESSURE (lb/ft²)

TABLE 1

Glass Type Code	Design Pressure (lb/ft²)



SECTION DETAIL FOR
WINDOWS WITH
LEVEL H3 REINFORCEMENT
& GLASS TYPES 5-7

GLASS TYPES 5 MAY NOT BE USED WITH LEVEL H3 REINFORCEMENT

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VINYL SINGLE HUNG WINDOW (LW)	DS0112
DESIGN PRESSURE TABLE	DSLT1SN-XEMPR
SHEET	TOP 1x

NOTES:

TABLE 1

Wind Speed (Vult) (3 sec gust)	Roof Zone	Effective Wind Area (sq. ft.)	Uplift Pressure (psf)																									
			10		20		30		40		50		60		70		80		90		100		110		120		130		140	
			R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O
110	1	10																												
		20																												
		50																												
		100																												
	2	10																												
		20																												
		50																												
		100																												
	3	10																												
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	5	10																												
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120	1	10																												
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		100																												
130	1	10																												
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		50																												
		100																												
	2	10																												
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	5	10																												
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		50																												
		100																												

SEE TABLE 2 SHEET 2 FOR ENGLISH FRACTIONAL WIND SPEED TO MPH TABLE

"SEE ENGINEERING LIMITATIONS REPORT" SR-106

APPLIES TO ANY MEMBER IN "R" OR O ZONES

NOTES:

1) USE THE ABOVE "ANCHOR QUANTITY REQUIRED....." TABLE FOR ANCHORS SPACED AT MAXIMUM 6'-0" O.C.

2) USE THE ABOVE "MAX. ANCHOR O.C. SPACING....." TABLE FOR ANCHORS SPACED AT MAXIMUM 6'-0" O.C.

3) STRAND DIAMETER: ATB TECH. "SRT" = 0.6875 DIA.

4) FOR ANGLES NOT SHOWN, INTERPOLATE TO THE NEXT HIGHER ANGLE WITH THE GREATEST UNBALANCED LOAD FOR TABLE

5) REFER TO TABLE 2 & 2.1 SHEET 2 FOR ANCHOR SPACING REQUIREMENTS

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VINYL SINGLE HUNG WINDOW (LM)

ANCHOR QUANTITY TABLE

DRAWN

8 OF 14

DRAWING NO. LM

| | | |

TABLE 10

WIND BORNE DEBRIS REGION
THROUGH OPENINGS

WIND SPEED (MPH) Ult. / ASD	MEAN ROOF HEIGHT (FT)	ENCLOSURE CLASSIFICATION
130 / 101	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
140 / 108	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
150 / 116	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
160 / 124	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
170 / 132	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
180 / 139	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
190 / 147	15	ENCLOSED
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	

ZONE 1	ZONE 2	ZONE 3

ZONE 1	ZONE 2	ZONE 3

ZONE 1	ZONE 2	ZONE 3

CLASS 1 PIECE 5 ft WIDE SCREWS MAY NOT BE USED WITH A DOUBLE OR MATCHING TAB FRAME

SEE TABLE 5 SHEET FOR EQUIVALENT WIND SPEED TABLE

* MIN. EMBEDDED 1 1/4 INTO BLOCK (REQUIP. 10.1.3)

(WITH ASD TO BE AMOUNT OF "R" SPECIFIED)

NOTES:

1) FRAME DIMENSIONS ARE BLOCK "IN" + MASONRY SIZE

(LOWER SASH MAY BE MOVED UP TO THE MEET RAIL BELOW, WHICH MAY BE LOCKED OPERATION ENGAGED ON FIX TAB.)

(LOCKING TO TABLE 5, SHEET) FOR ANCHOR DESIGN (EXCEPTIONS)

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VINYL SINGLE HUNG WINDOW (LW)	DRAWING
ANCHOR QUANTITY TABLE	COLTON KEMPF
SHEET	10 OF 14
SHEET NO.	SHEET NO-LW

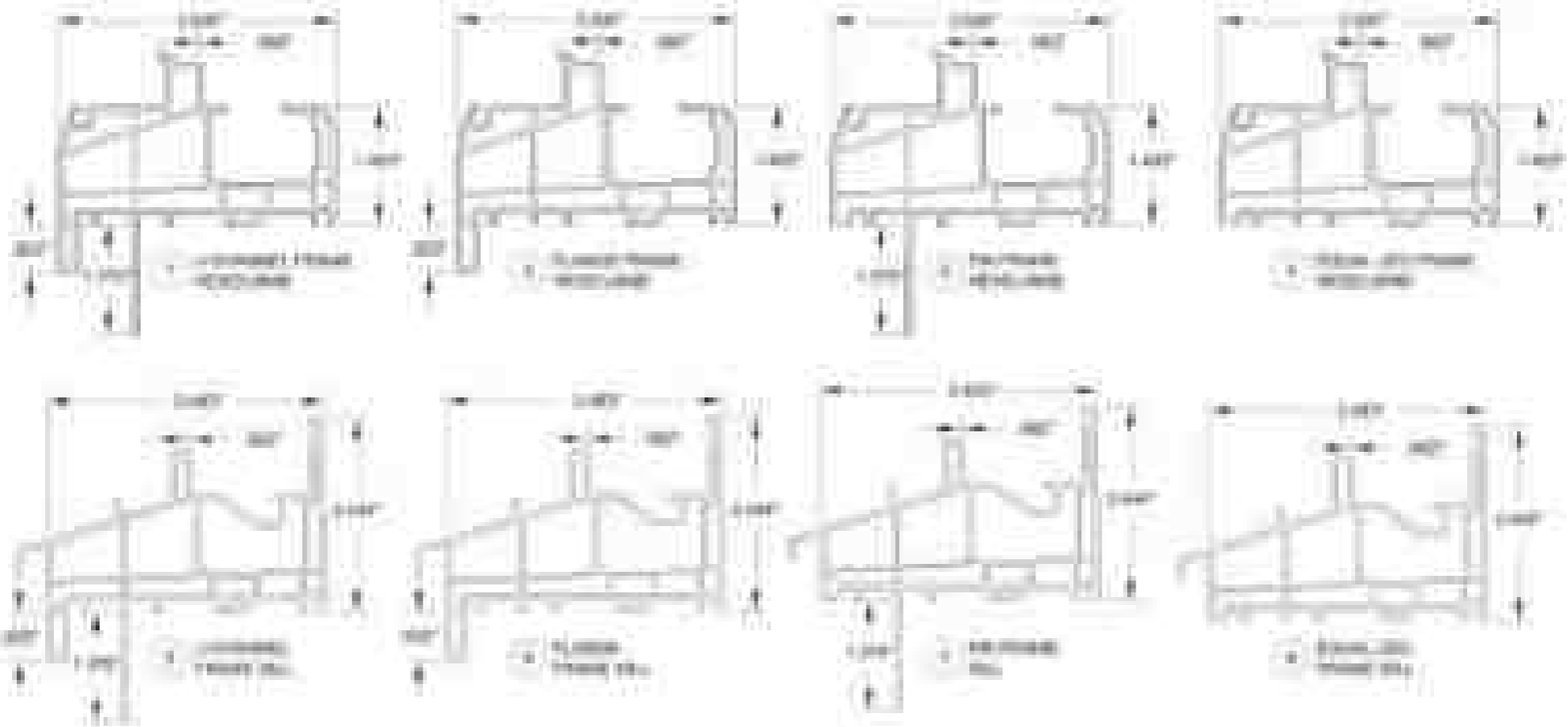
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VINYL SINGLE HUNG WINDOW (LM)

ANCHOR QUANTITY TABLE

SHEET 11 OF 14











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VINYL SINGLE HUNG WINDOW (LM)

WINDOW EXTRUSIONS

COLTON KEMPF

SHEET 10 OF 14

WINDOW DD-LM

Bill of Material

#	Part #	Description	Material
1	[illegible]	Single Hung Frame Head & Jambs - 2 Panel	PVC
2	330102	Single Hung Frame Head & Jambs - Flange	PVC
3	330103	Single Hung Sash Head & Jambs - Fin	PVC
4	330104	Single Hung Frame Head & Jambs - Fixed Legacy	PVC
5	330105	SH/DH Frame Sill - 2 Panel	PVC
6	330106	SH/DH Frame Sill - Flange	PVC
7	330107	SH/DH Frame Sill - Fin	PVC
8	330108	SH/DH Frame Sill - Fixed Legacy	PVC
9	330109	Fixed Meeting Rail	PVC
10	330110	Sash Rail (Utility, Top & Bottom)	PVC
11	330111	Bulbseal Insert	PVC
12	330112	Sash Rail Screw Cover	PVC
13	330113	Pull Rail Assembly	[illegible]
14	330114	Pull Rail Endblock Cover	PVC
15	330115	Bulbseal Insert	[illegible]
16	330116	Fixed Meeting Rail Cover	PVC
17	330117	Sash Rail Reinforcement	[illegible]
18	330118	Fixed Meeting Rail Reinforcement	[illegible]
19	330119	Fixed Meeting Rail Reinforcement	[illegible]
20	330120	Weatherstrip - 90° x .250" Fin Fin	
21	330121	Weatherstrip - 180° x .250" Fixed Rail	Polyolefin
22	330122	Weatherstrip - 180° x .250" Fin Fin	
23	330123	Weatherstrip Fin - 250" Fixed	
24	330124	Mill x .5" Dia. Fin 6063 Balance Mounting Screw	
25	330125	Mill x .5" Fin Fin 6063 Meeting Rail Screw	#10-32
26	330126	Meeting Rail Shoe Support Plate	[illegible]
27	330127	Snap Hex Cover	PVC
28	[illegible]	Extruded Fixed Meeting	
29		Mill x 3/8" Dia. Fin 6063 Cam Force Balance Screw	.20
30		Cover Balance	
31	330128	Cover Balance Shoe	Nylon
32	330129	Mill x 1 1/4" Fin Fin 6063 Nylon Balance Screw	#10-32

Bill of Material cont.

#	Part #	Description	Material
33	[illegible]	[illegible]	[illegible]
34	[illegible]	[illegible]	[illegible]
35	[illegible]	[illegible]	[illegible]
36	[illegible]	[illegible]	[illegible]
37	[illegible]	[illegible]	[illegible]
38	[illegible]	[illegible]	[illegible]
39	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	[illegible]
41	[illegible]	[illegible]	[illegible]
42	[illegible]	[illegible]	[illegible]
43	[illegible]	[illegible]	[illegible]
44	[illegible]	[illegible]	[illegible]
45	[illegible]	[illegible]	[illegible]
46	[illegible]	[illegible]	[illegible]
47	[illegible]	[illegible]	[illegible]
48	[illegible]	[illegible]	[illegible]
49	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]
51	[illegible]	[illegible]	[illegible]
52	[illegible]	[illegible]	[illegible]
53	[illegible]	[illegible]	[illegible]
54	[illegible]	[illegible]	[illegible]
55	[illegible]	[illegible]	[illegible]
56	[illegible]	[illegible]	[illegible]
57	[illegible]	[illegible]	[illegible]
58	[illegible]	[illegible]	[illegible]
59	[illegible]	[illegible]	[illegible]
60	[illegible]	[illegible]	[illegible]
61	[illegible]	[illegible]	[illegible]
62	[illegible]	[illegible]	[illegible]
63	[illegible]	[illegible]	[illegible]
64	[illegible]	[illegible]	[illegible]
65	[illegible]	[illegible]	[illegible]
66	[illegible]	[illegible]	[illegible]
67	[illegible]	[illegible]	[illegible]

Notes

[illegible]

[illegible]

PGT

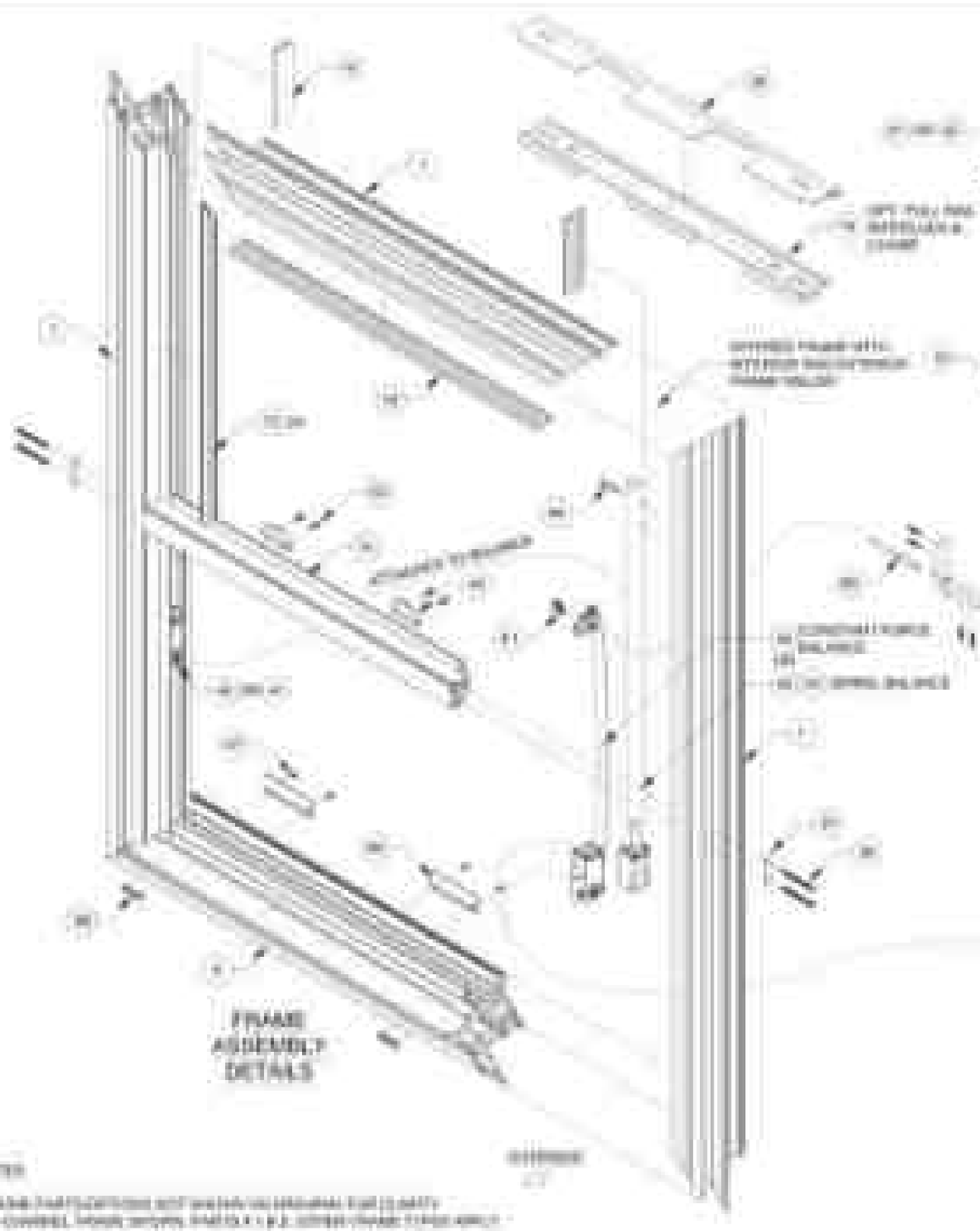
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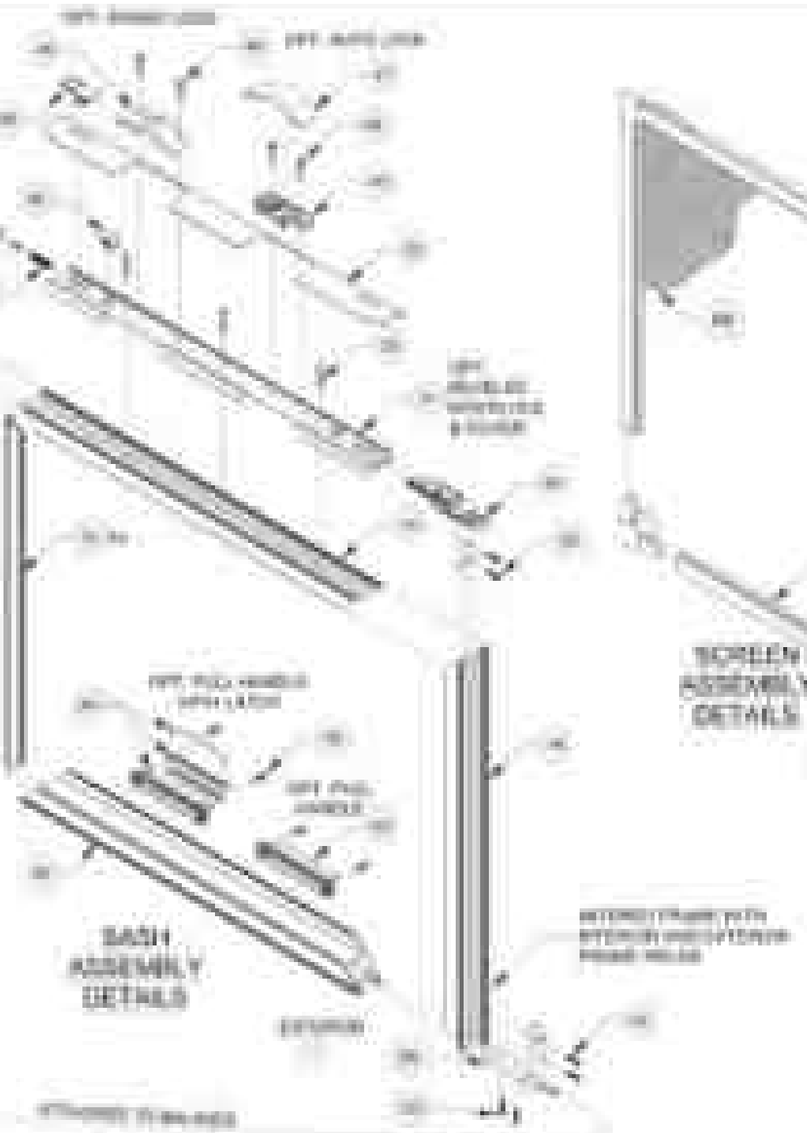
VINYL SINGLE HUNG WINDOW (LM)

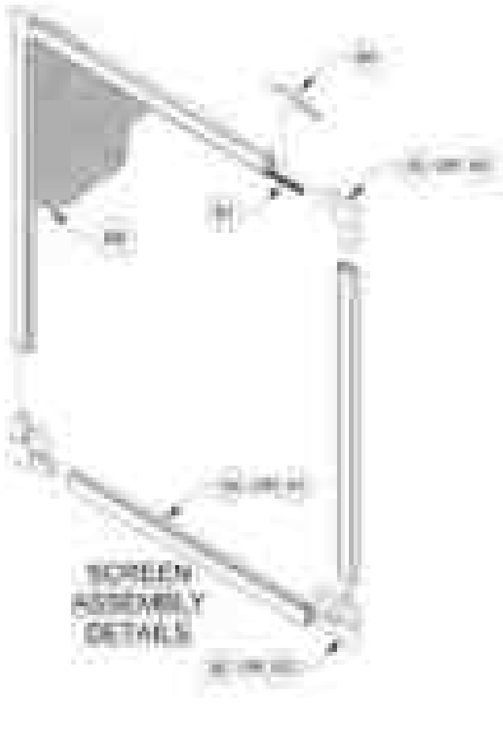
BILL OF MATERIALS

SHEET 10 OF 14

[illegible]







NOTES

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VINYL SINGLE HUNG WINDOW (LM)

EXPLODED ASSEMBLY

SHEET 14 OF 14